



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE

BUILDING AND CIVIL TECHNOLOGY N3

10 APRIL 2018

This marking guideline consists of 7 pages.

QUESTION 1

- 1.1 1.1.1 B
 1.1.2 C
 1.1.3 D
 1.1.4 A
 1.1.5 B
 1.1.6 C
 1.1.7 D
 1.1.8 B
 1.1.9 C
 1.1.10 D

(10 × 1) (10)

- 1.2 • Message must be clear
 • Message must be accompanied by an explanation
 • Message must be reasonable
 • Communicator must use clear channels of communication
 • Message must be complete.

(Any 4 × 1) (4)

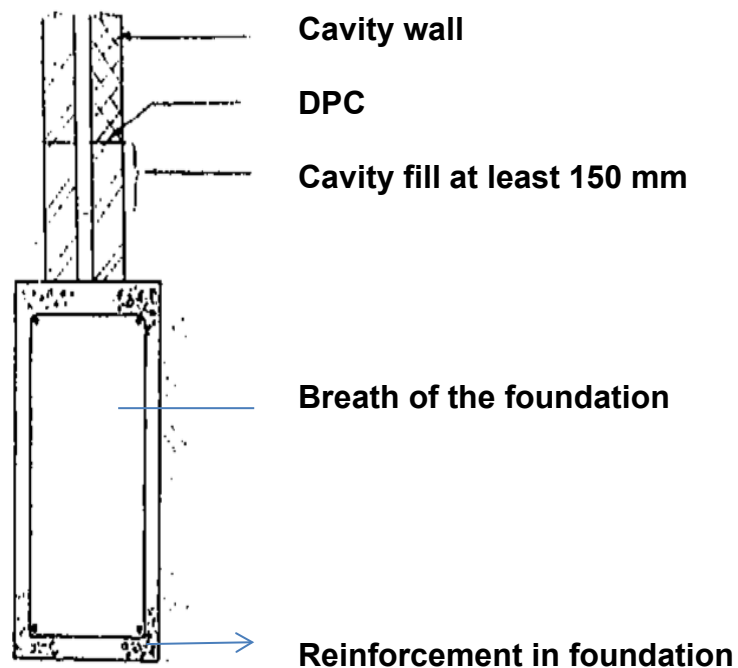
- 1.3 • Face-to-face (direct)
 • Two-way (when there is feedback)
 • One-sided (when there is no feedback)
 • Public (mass communication)
 • Gestures, signals, etc. (indirect)

(Any 2 × 1) (2)

[16]

QUESTION 2

2.1



(8)

MARK ALLOCATION:

Labels $4 \times 1 = 4$
 Sketches $3 - \frac{1}{2} = \text{per fault}$
 Neatness $= 1$

2.2

- Lead
- Bitumen
- Dense brick
- Slate
- Copper
- Asphalt
- Polythene
- PVC
- Galvanized sheeting
- Fibrous asphalt

(Any 5 × 1) (5)

2.3

The foundation is that part of the building✓ which is built into the ground✓ and which supports the structures as a whole.✓

(3)
[16]

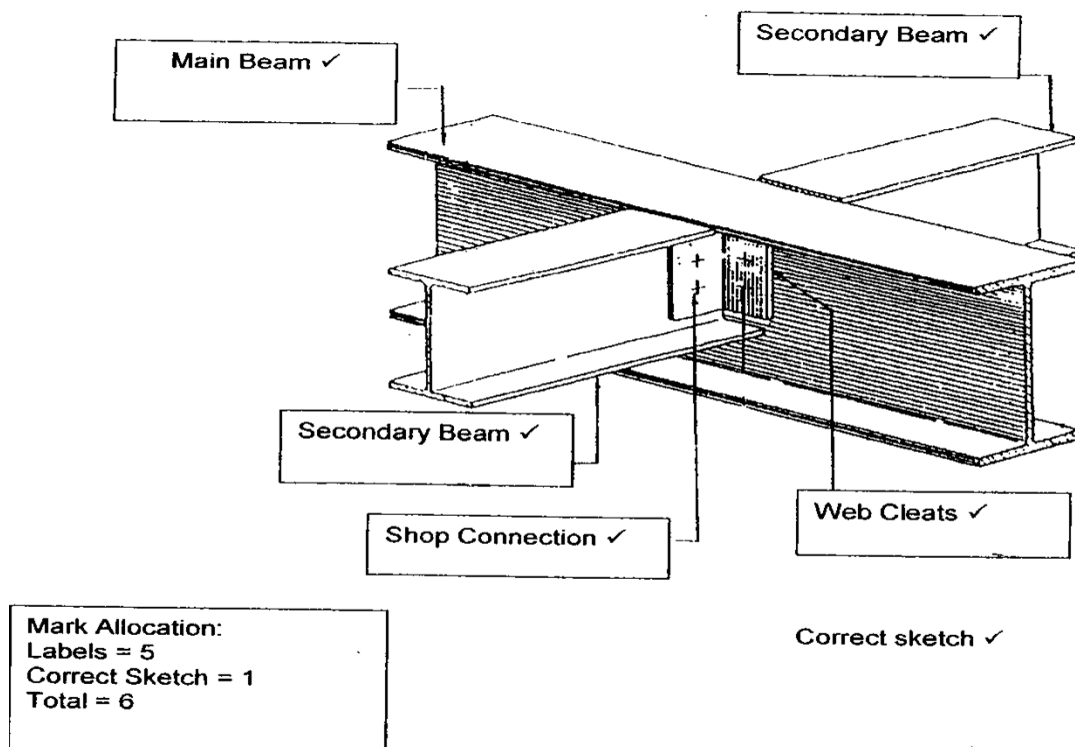
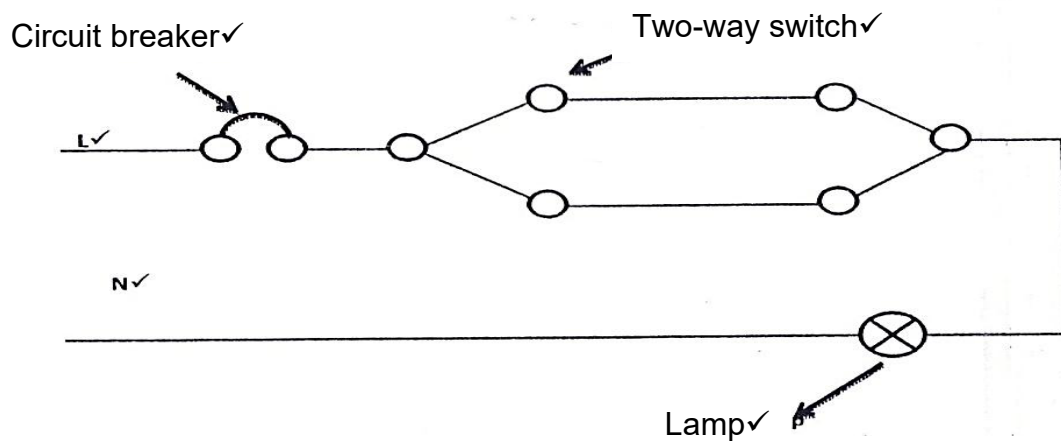
QUESTION 3

- 3.1 Mass of water = Ratio $\times$ cement
 = $0,4 \times 250$ ✓
 = 100 kg✓
 = 100 litres✓ (3)
- 3.2 3.2.1 25 mm
 3.2.2 12 mm
 3.2.3 75 mm
 3.2.4 40 mm (4 \times 1) (4)
- 3.3 • To ensure that there are no gaps in the joints and that they are watertight
 • To decorate the wall so that it has a specific desired appearance
 • To prevent penetration of water into the walls (Any 2 $\times$ 1) (2)
- 3.4 3.4.1 Nonloadbearing lightweight concrete
 3.4.2 Cavity wall, brick outer leaf
 3.4.3 Wall ties at 450 vertically
 3.4.4 D.P.C
 3.4.5 Ground level
 3.4.6 Floor level
 3.4.7 Narrow trench fill foundation (7 \times 1) (7)
[16]

QUESTION 4

- 4.1 4.1.1 Soil vent pipe
 4.1.2 Septic tank
 4.1.3 Valve
 4.1.4 Wash basin
 4.1.5 Ground level
 4.1.6 French drain (6 \times 1) (6)
- 4.2 • It requires little space.
 • It is easy to repair the valve because it is so accessible.
 • There is increased pressure at the drawing-off point
 • It is a cheaper geyser because it requires less labour and fewer materials. (4)

4.3

(6)
[16]**QUESTION 5**5.1 Two-way switching

(5)

- 5.2
- In a bathroom
 - Above a stove
 - Anywhere below 1,2 m above the floor level
 - Anywhere above 2,2 m and above floor level
 - In any space that is too confined

(Any 3 × 1)

(3)

5.3

- Durability:✓ the material to be used must have a reasonable life span.✓
- Resistance:✓ the floor material should withstand a heavy load placed on top of it.✓
- Economical:✓ the initial capital investment and maintenance of the floor area. ✓ Cost and maintenance of the floor area should be considered.
- Cleaning operation:✓ the floor should be cleaned with ease.✓
- Nonslip qualities:✓ the material used for particular traffic or storage purposed should be of nonslip qualities to ensure safety.✓
- Appearance:✓ it is important to consider which type of material to use for a specific room.✓
- Warmth. ✓ If rooms need warmth, specific floor covering are needed ✓
- An appropriately attractive finish : ✓ attractive finish that address the need of the client✓
- Stability: ✓ the material to be used must be stable to carry the appropriate load within the household ✓
- Acoustic properties: ✓ floor must be quite with the lease noise levels raising from the floor when in use✓
- Thermal properties: ✓ floor must be able to isolate cold and warmth in the room ✓
- Fire resistance: floor have to have unfriendly specifications to fire
- Moisture resistance: ✓ floor material should withstand moisture in all circumstances ✓

(Any 4 × 2)

(8)

[16]

QUESTION 6

6.1 6.1.1 Area of the wall = $20 \text{ m} \times 3 \text{ m}$
 = 60 m^2 ✓

Area of the door opening = $2 \text{ m} \times 2 \text{ m}$
 = 4 m^2 ✓

Area of the window opening = $2 \times 1,5$
 = 3 m^2 ✓

Total Area = $60 - 4 - 3$
 = 53 m^2 ✓ (4)

6.1.2 Amount of bricks required = 53×100 ✓
 = $5\,300$ bricks✓ (2)

6.1.3 Amount of sand required = $5\,300 \div 1\,000$ ✓
 = $5,3$ tonnes (2)

6.1.4 Labour cost = $53 \times R250$ ✓
 = $R13\,250$ ✓ (2)

6.2	6.2.1	• Paving enhances the appearance of the property or area. • Paving is used in driveways or at entrances that are subjected to heavy traffic. • Paving is used in areas where a hard-wearing surface with low maintenance is required. • Paving is used for garden paths. • Paving is used where the natural soil is unsuitable for other purposes	(Any 4 × 1)	(4)
	6.2.2	Edging is important in preventing the paving from moving and disintegrating.		(1)
6.3		• Slipperiness in all weather conditions • Potholing in rainy weather • The formation of corrugation with traffic flow		(3)
6.4		• The applied loads. • Deformations resulting afterwards • The way the material reacts to stresses and deformations • The foundation material and the internal stresses in the pavement	(Any 2 × 1)	(2)
				[20]
TOTAL:				100